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Software application for bill splitting

ABSTRACT

Individuals of a group may at times prefer to split the expense of a group activity, such as group lunch or dinner, among themselves. Techniques described enable splitting of a group bill by allocating items of the bill to corresponding users. Such bill splitting can be implemented using a variety of interfaces, including voice UI, conversational UI, and visual interfaces. Also, techniques described can be integrated with other platforms to enable online reviews and payments.

KEYWORDS

- Bill splitting
- Conversational assistant
- Virtual assistant
- Payment
- Mobile wallet
- Image recognition

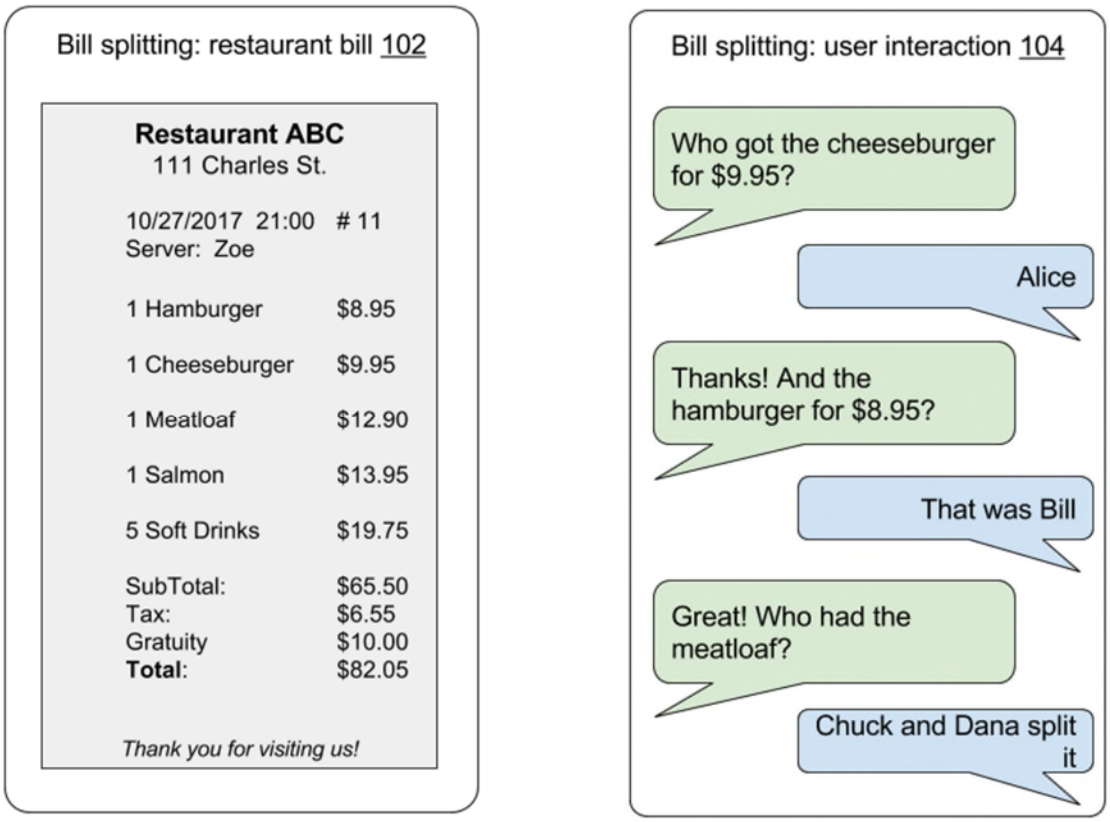
BACKGROUND

Individuals often participate in group activities, e.g., eating out, where each individual in the group is responsible for covering their individual expenses. Calculating individual share of the total expenses can be cumbersome, time consuming and prone to errors. Also, in some instances, e.g., group dinners, different individuals may have different preferences regarding tipping or rounding.

DESCRIPTION

This disclosure describes techniques that enable splitting of a bill among individuals of a group. The techniques can be implemented, e.g., as part of a software application such as a virtual assistant, a payment or mobile wallet application, a messaging application, etc. A user interface is provided to perform the bill splitting.

For example, a conversational assistant can provide a chat or voice-based interface to enable users to allocate items on a bill to individuals of a group. Further, a graphical user interface can also be provided. For example, the GUI can enable users to drag individual items on a bill and assign the item to the individual responsible for payment for the respective items.



(a) **(b)**

Fig. 1: Bill splitting user interface

Fig. 1 illustrates an example user interface for a bill splitting software application, e.g., a conversational assistant. A user launches the conversational assistant to split the bill, e.g., with a

voice command: “Help me split the bill.” The user can provide the bill to the conversational assistant, e.g., by capturing an image (102) of the bill. Optical character recognition or other techniques are utilized to recognize the text on the bill. Based on the recognition, the conversational assistant lists individual items and requests the user to respond with names of individuals that are responsible for the item, as illustrated in Fig. 1(b).

Alternatively, the user can provide a voice instruction of how to split the bill, e.g., “Alice got the cheeseburger. Bill got the hamburger. Chuck and Dana split the meatloaf. We all got soft drinks.” The conversational assistant automatically assigns the remaining items on the bill (e.g., “Salmon”) to the user. The conversational assistant also recognizes other items, e.g., tips and taxes, and allocates those automatically to the individuals. Alternatively, the conversational assistant can ask the user to list such amounts and allocate those to individual users.

Alternatively, bill splitting can be presented as a visual user interface, e.g., that mimics people sitting around a table, and enable the user to drag individual line items to assign to guests, carrying the expense to the guest’s total. Once user input is received, the conversational assistant provides the calculated amounts for each group member, and obtains confirmation from the user. Fig. 2 illustrates an example user interface for this purpose.

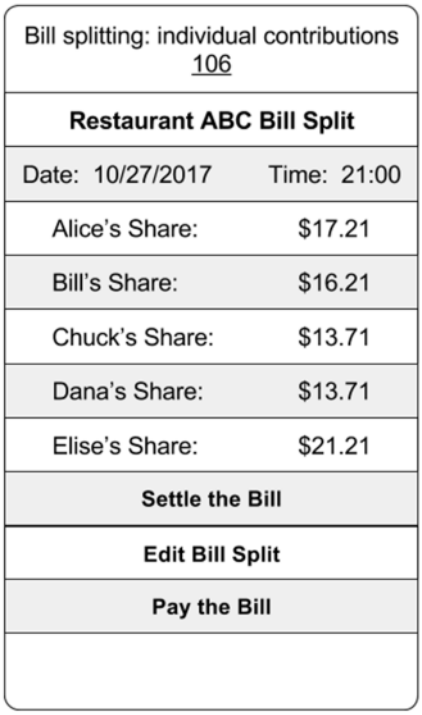


Fig. 2: Assistant output

Upon calculation of the individual shares, if the user provide permission to access a payment platform or mobile wallet and the user's contacts, the present techniques can facilitate payments. For example, the conversational assistant can look up the individuals in the user's contacts and obtain user confirmation of the amounts allocated to each individual. The conversational assistant then shares the individual amounts with the respective contact, e.g., via a mobile wallet, messaging application, etc.

The present techniques can, with user permission and express consent, also integrate with relevant platforms to provide additional services. For example, by integrating with a restaurant review platform, group members can rate restaurants for their respective order. The rating information can then be used for recommendations. Similarly, when users permit use of such

data for advertising, advertisements can be customized based on the places where a user has eaten or the food they ordered.

Further to the descriptions above, a user may be provided with controls allowing the user to make an election as to both if and when systems, programs or features described herein may enable collection of user information (e.g., information about a user's social network, social actions or activities, profession, a user's preferences, or a user's current location), and if the user is sent content or communications from a server. In addition, certain data may be treated in one or more ways before it is stored or used, so that personally identifiable information is removed. For example, a user's identity may be treated so that no personally identifiable information can be determined for the user, or a user's geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level), so that a particular location of a user cannot be determined. Thus, the user may have control over what information is collected about the user, how that information is used, and what information is provided to the user.

CONCLUSION

Techniques described enable users to split a bill generated for an entire group among individuals of the group based on their respective expenses. The bill splitting assistant or application can be accessed using a variety of interfaces. A voice-based user interface can allocate items on a bill to individuals based on voice instructions while a visual interface provides users the option of dragging and assigning items on the bill to each individual.

The present techniques can be integrated with other platforms such as review and payment platforms to enable groups to rate restaurants and dishes and/or settle group bills. Integration with social media platforms allows groups to share their experience and ratings.